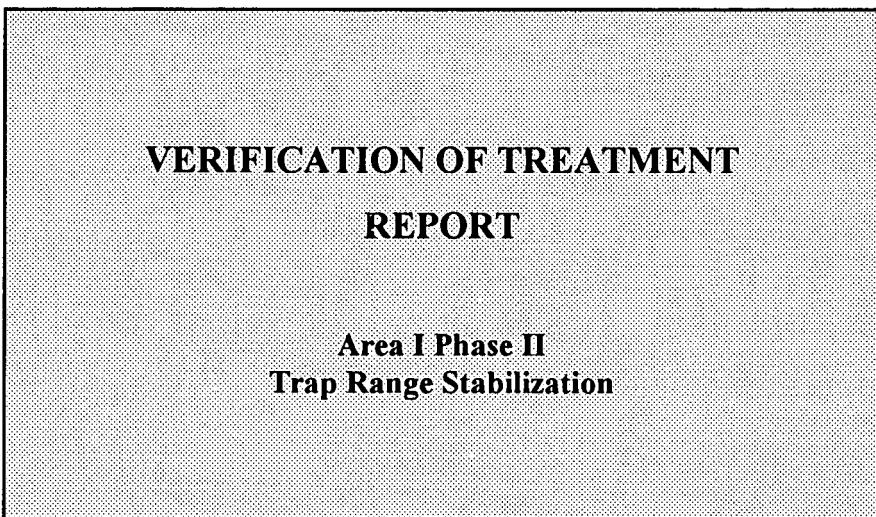




**Sevenson
Environmental
Services, Inc.**

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Area Description	1
1.2	Stabilization Methods	2
2.0	SOIL SAMPLING AND ANALYSIS	3
2.1	Treated Soil Sampling	3
2.2	Analytical Results	4
2.3	a posteriori Sample Size Test	8
3.0	SUMMARY	13

Appendix A - Laboratory Reports

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Sevenson Environmental Services, Inc. (Sevenson) presents a Verification of Treatment Report (VTR) for the Area 1 Phase II Trap Range Stabilization project at the Fernald Environmental Management Project (FEMP) site in Fernald, Ohio. This report has been prepared in accordance with the requirements of Section 02211 of the technical specifications.

Sevenson was subcontracted to stabilize lead- and arsenic-impacted soils at the Trap Range site. Sevenson used its patented MAECTITE® process to stabilize the soils in-situ. The treated soils were to meet the following criteria:

- Meet or exceed the requirements of the Toxicity Characteristic Leaching Procedure (TCLP) test for lead (5.0 mg/l) and arsenic (5.0 mg/l).
- Pass the EPA Paint Filter Liquids Test.

Prior to stabilization activities Sevenson submitted work plans for review and approval. Initially, Sevenson performed a treatability study on samples from the Trap Range in order to design a stabilization mix. The results were presented in a Treatability Study Report. The treatability study results were used to develop a Full Scale Stabilization Work Plan (FSSWP) for stabilization of the Trap Range soils. In conjunction with the FSSWP, a Verification of Treatment Sampling Plan was developed. This VTR presents a summary of the results of the verification sampling for treated soils at the project site.

1.1 Area Description

The Area 1 Phase II Trap Range site is located in the southeast quadrant of the FEMP and southwest of the former Sewage Treatment Plant. FEMP employees used the range for recreational purposes from the mid-1950's until 1988. This activity resulted in the surface

deposition of lead shot and clay fragments.

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Site characterization studies identified the presence of lead- and arsenic-impacted soils above the final remediation levels of 400 mg/kg and 12 mg/kg for lead and arsenic, respectively, at the Trap Range site. Pre-design investigation was performed by FDF to delineate the limits of the area to be stabilized.

1.2 Stabilization Methods

The area and depth requiring soil stabilization was as shown on the Construction Drawings, specifically Drawing No. 92X-5900-G-00514. The soils were stabilized to a typical depth of 6 inches, except for two specified areas where the soils were stabilized to depths of 10 inches and 12 inches, respectively. Depth tolerances were minus 0 to plus 2 inches. Surveying was performed to confirm the limits of stabilization.

The remediation area was divided into seventy-two (72) surveyed grids for treatment control. Treatment grids were approximately 2,500 square foot (50 ft. by 50 ft.) areas adjacent to one another across the remediation area.

MAECTITE® liquid reagent was sprayed onto the ground surface and mixed into the soils with a flat-edged backhoe bucket. The mixing may be described as a back-and-forth folding motion, which created a homogeneous mix. A controlled application of water was also added to the treatment grid to enhance the dispersion of the reagent.

Stabilization began on July 15, 1999 and was completed on August 3, 1999 (Figure 1). A total of 25,355 gallons of MAECTITE® liquid reagent was applied to the 72 grids.

Field pH readings were used as process control to ensure that the MAECTITE® had been properly mixed into the soils. Five random pH measurements were obtained from each grid after

treatment. Based on treatability studies, pH measurements of 3 or below would indicate that proper mixing had occurred. Subsequently, three grids (Grid Numbers 56, 64, and 65) were re-treated due to pH readings above 3.

2.0 SOIL SAMPLING AND ANALYSIS

The soils treated by Sevenson's MAECTITE® process were sampled and analyzed for treatment verification after pH readings below 3 were documented to verify proper application and mixing. The primary objectives of the soil sampling and analysis program were to collect samples that were representative of the mixing and stabilization process. Further, the program must provide a 95% confidence level that more than 99% of the treated soil is below the TCLP criteria limits. The following sections present a description of the treated soil sampling, analytical results, and an *a posteriori* sample size test to confirm that the sample size was sufficient to assess compliance with the TCLP limit.

2.1 Treated Soil Sampling

Sevenson utilized a random sampling strategy for verification of treatment sampling and analysis. One sample location, identified as a survey coordinate, was randomly generated for each treatment grid. A computer program was used to generate the locations. This strategy was based on the assumption that each grid, after treatment, was uniform and homogeneous with respect to leachable lead and arsenic.

Sevenson collected samples from each treated grid by collecting sufficient surface (0-0.5 ft) soil material into a mixing pan from each sampling location. The soil was then homogenized in the basin by FDF sampling technicians, in accordance with approved procedures. The samples were labeled, packaged, placed in an iced cooler (4°C), and shipped to the offsite laboratory for analyses.

The sample homogenization technique was as follows:

- 2477

1. Divide sample into quarters and thoroughly mix each quarter.
2. Combine two opposite quarters into halves and thoroughly mix each half.
3. Combine halves into one and thoroughly mix.
4. Return to Step 1 until sample has been mixed twice.
5. Place sample into applicable sample container for shipment to lab.

Each treatment/sampling grid was given a unique identification number. The samples were numbered sequentially by treatment grid, beginning with TG01-01 (Treatment Grid 1, Sample Number 1).

Ten percent (10%) of the samples were split with FDF and analyzed at their on-site laboratory. Three samples were also split with the Ohio Environmental Protection Agency on August 2, 1999.

2.2 Analytical Results

The verification samples were shipped overnight to Waste Stream Technology, Inc. (WST) in Buffalo, New York for offsite analysis by U.S. EPA SW-846 Method 6000/7000. The analytical results for the Trap Range samples are presented in Table 1.

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Table 1
Verification of Treatment Testing
Area 1 Phase II Trap Range

Sample Date	Sample Number	Grid Number	Easting	Northing	pH Readings	TCLP Lead (mg/l)	TCLP Arsenic (mg/l)
07-19-99	TG72-01	72	1351112	478415	<3	ND<0.075	ND<0.045
07-19-99	TG71-01	71	1351006	478401	<3	ND<0.075	ND<0.045
07-19-99	TG70-01	70	1351166	478466	<3	ND<0.075	ND<0.045
07-19-99	TG69-01	69	1351111	478443	<3	ND<0.075	0.066
07-19-99	TG68-01	68	1351068	478431	<3	ND<0.075	ND<0.045
07-28-99	TG67-01	67	1351063	478488	<3	ND<0.075	ND<0.045
07-28-99	TG67-01D	67	1351063	478488	NA	ND<0.075	0.049
07-22-99	TG66-01	66	1351029	478439	<3	ND<0.075	ND<0.045
07-22-99	TG66-01D	66	1351029	478439	NA	ND<0.075	ND<0.045
07-22-99	TG65-01	65	1350970	478466	* <3	ND<0.075	ND<0.045
07-22-99	TG64-01	64	1350930	478426	* <3	ND<0.075	0.079
07-22-99	TG63-01	63	1351208	478508	<3	ND<0.075	ND<0.045
07-22-99	TG62-01	62	1351145	478488	<3	ND<0.075	0.091
07-22-99	TG61-01	61	1351093	478503	<3	0.101	0.137
07-22-99	TG60-01	60	1351051	478512	<3	0.079	0.084
07-22-99	TG59-01	59	1351015	478501	<3	ND<0.075	0.065
07-22-99	TG58-01	58	1350949	478503	<3	ND<0.075	0.179
07-22-99	TG57-01	57	1350915	478476	<3	ND<0.075	0.068
07-22-99	TG56-01	56	1350862	478501	* <3	ND<0.075	0.111
07-22-99	TG56-01D	56	1350862	478501	NA	ND<0.075	0.116
07-28-99	TG55-01	55	1351258	478570	<3	ND<0.075	ND<0.045
07-28-99	TG54-01	54	1351195	478552	<3	ND<0.075	ND<0.045
07-28-99	TG53-01	53	1351157	478540	<3	ND<0.075	0.109
07-28-99	TG52-01	52	1351070	478540	<3	0.184	0.135

Table 1 (Continued)
 Verification of Treatment Testing
 Area 1 Phase II Trap Range

Sample Date	Sample Number	Grid Number	Easting	Northing	pH Readings	TCLP Lead (mg/l)	TCLP Arsenic (mg/l)
07-28-99	TG51-01	51	1351021	478567	<3	0.125	0.393
07-28-99	TG50-01	50	1350968	478550	<3	0.102	0.293
07-28-99	TG49-01	49	1350904	478534	<3	0.080	0.093
08-02-99	TG48-01	48	1350828	478530	<3	ND<0.075	ND<0.045
08-02-99	TG48-01D	48	1350828	478530	NA	ND<0.075	ND<0.045
07-28-99	TG47-01	47	1351293	478619	<3	ND<0.075	ND<0.045
07-28-99	TG47-01D	47	1351293	478619	NA	ND<0.075	ND<0.045
07-28-99	TG46-01	46	1351270	478633	<3	ND<0.075	ND<0.045
07-28-99	TG45-01	45	1351214	478616	<3	0.096	0.184
07-28-99	TG44-01	44	1351132	478619	<3	0.184	0.187
07-28-99	TG43-01	43	1351111	478586	<3	0.093	0.231
07-28-99	TG42-01	42	1351051	478591	<3	0.259	0.307
07-28-99	TG41-01	41	1351016	478605	<3	0.333	0.253
07-28-99	TG40-01	40	1350935	478603	<3	0.268	0.119
07-28-99	TG39-01	39	1350883	478604	<3	ND<0.075	0.046
08-02-99	TG38-01	38	1350842	478588	<3	ND<0.075	ND<0.045
08-02-99	TG38-01D	38	1350842	478588	NA	ND<0.075	ND<0.045
08-02-99	TG37-01	37	1351267	478674	<3	ND<0.075	ND<0.045
08-02-99	TG36-01	36	1351174	478669	<3	0.400	0.129
08-02-99	TG35-01	35	1351151	478663	<3	0.175	0.183
08-02-99	TG34-01	34	1351102	478675	<3	0.111	0.090
08-02-99	TG33-01	33	1351038	478669	<3	0.126	0.180
08-02-99	TG32-01	32	1351018	478648	<3	0.209	0.663
08-02-99	TG31-01	31	1351959	478654	<3	0.080	0.084

Table 1 (Continued)
 Verification of Treatment Testing
 Area 1 Phase II Trap Range

Sample Date	Sample Number	Grid Number	Easting	Northing	pH Readings	TCLP Lead (mg/l)	TCLP Arsenic (mg/l)
08-02-99	TG30-01	30	1350894	478654	<3	0.113	0.075
08-02-99	TG29-01	29	1350846	478624	<3	ND<0.075	ND<0.045
08-02-99	TG28-01	28	1351231	478696	<3	ND<0.075	ND<0.045
08-02-99	TG27-01	27	1351186	478702	<3	ND<0.075	ND<0.045
08-02-99	TG26-01	26	1351129	478691	<3	0.099	0.062
08-02-99	TG25-01	25	1351091	478688	<3	ND<0.075	0.119
08-02-99	TG24-01	24	1351060	478688	<3	0.249	0.210
08-02-99	TG23-01	23	1350978	478713	<3	ND<0.075	ND<0.045
08-02-99	TG22-01	22	1350922	478685	<3	ND<0.075	ND<0.045
08-02-99	TG21-01	21	1350889	478689	<3	ND<0.075	ND<0.045
08-02-99	TG20-01	20	1351174	478783	<3	ND<0.075	ND<0.045
08-02-99	TG19-01	19	1351145	478741	<3	ND<0.075	ND<0.045
08-02-99	TG18-01	18	1351090	478737	<3	ND<0.075	ND<0.045
08-04-99	TG17-01	17	1351051	478770	<3	ND<0.075	ND<0.045
08-04-99	TG16-01	16	1351002	478730	<3	ND<0.075	ND<0.045
08-04-99	TG15-01	15	1350955	478742	<3	ND<0.075	ND<0.045
08-04-99	TG14-01	14	1350901	478733	<3	ND<0.075	ND<0.045
08-02-99	TG13-01	13	1351182	478801	<3	ND<0.075	ND<0.045
08-02-99	TG12-01	12	1351149	478818	<3	ND<0.075	0.059
08-04-99	TG11-01	11	1351067	478789	<3	ND<0.075	ND<0.045
08-04-99	TG10-01	10	1351015	478803	<3	ND<0.075	ND<0.045
08-04-99	TG09-01	09	1350974	478782	<3	ND<0.075	ND<0.045
08-04-99	TG08-01	08	1350957	478804	<3	ND<0.075	ND<0.045
08-04-99	TG07-01	07	1351165	478842	<3	ND<0.075	ND<0.045

Table 1 (Continued)
Verification of Treatment Testing
Area 1 Phase II Trap Range

Sample Date	Sample Number	Grid Number	Easting	Northing	pH Readings	TCLP Lead (mg/l)	TCLP Arsenic (mg/l)
08-04-99	TG06-01	06	1351084	478849	<3	ND<0.075	ND<0.045
08-04-99	TG06-01D	06	1351084	478849	NA	ND<0.075	ND<0.045
08-04-99	TG05-01	05	1351022	478836	<3	ND<0.075	ND<0.045
08-04-99	TG04-01	04	1350942	478828	<3	ND<0.075	ND<0.045
08-04-99	TG03-01	03	1351065	478902	<3	ND<0.075	ND<0.045
08-04-99	TG02-01	02	1350959	478031	<3	ND<0.075	ND<0.045
08-04-99	TG02-01D	02	1350959	478031	NA	ND<0.075	ND<0.045
08-04-99	TG01-01	01	1350925	478088	<3	ND<0.075	0.045

* Initial pH readings >3. Grids were retreated and pH readings found to be <3.

All samples passed the EPA Paint Filter Liquids Test. D = Duplicate sample.

2.3 *a posteriori* Sample Size Test

After all samples were collected and analyzed, and all the results shown to be below the TCLP limit, an *a posteriori* sample size determination was performed to confirm that the sample size was sufficient to assess compliance with the TCLP limit.

Seventy two samples (plus six duplicate samples) were collected and analyzed from the Trap Range treatment area and all the results were shown to be below the TCLP limit. An *a posteriori* sample size determination was performed to determine if the sample size was sufficient to assess compliance with the TCLP limit. We use the same equation used to calculate sample size, but, in this case, turning the equation around and solve for the *K* factor using the sample mean and standard deviation of the 72 samples (Table 3). The calculated *K* factor is then compared to the table of factors for estimating the upper confidence limit on the *p*th percentile

from a normal distribution (Table 4). In our case, the percentile of concern is the 99th percentile with a confidence level of 95%. The sample size, n, associated with the largest tabled K factor less than the calculated K would be the required sample size to demonstrate that the UTL of the population is less than the TCLP limit. If this sample size is less than or equal to 72, we would conclude that the sample size was sufficient.

The following equation was used to calculate the K factor:

$$K = \frac{UTL - \bar{x}}{s}$$

where

$$\bar{x} = \text{sample mean residual level} = \frac{1}{72} \sum_{i=1}^{72} TCLP_i, \text{ and}$$

$$s = \text{sample standard deviation} = \sqrt{\frac{1}{72-1} \sum_{i=1}^{72} (TCLP_i - \bar{x})^2}, \text{ and}$$

where

$TCLP_i$ = the ith TCLP sample.

Table 3
Calculated K Factor

TCLP Lead				TCLP Arsenic	
Sample Number	Grid	Reported Result	Calculation Value*	Reported Result	Calculation Value*
TG01-01	1	< 0.075	0.0375	0.045	0.045
TG02-01	2	< 0.075	0.0375	< 0.045	0.0225
TG03-01	3	< 0.075	0.0375	< 0.045	0.0225
TG04-01	4	< 0.075	0.0375	< 0.045	0.0225
TG05-01	5	< 0.075	0.0375	< 0.045	0.0225
TG06-01	6	< 0.075	0.0375	< 0.045	0.0225
TG07-01	7	< 0.075	0.0375	< 0.045	0.0225
TG08-01	8	< 0.075	0.0375	< 0.045	0.0225
TG09-01	9	< 0.075	0.0375	< 0.045	0.0225
TG10-01	10	< 0.075	0.0375	< 0.045	0.0225
TG11-01	11	< 0.075	0.0375	< 0.045	0.0225
TG12-01	12	< 0.075	0.0375	0.059	0.059
TG13-01	13	< 0.075	0.0375	< 0.045	0.0225
TG14-01	14	< 0.075	0.0375	< 0.045	0.0225
TG15-01	15	< 0.075	0.0375	< 0.045	0.0225
TG16-01	16	< 0.075	0.0375	< 0.045	0.0225
TG17-01	17	< 0.075	0.0375	< 0.045	0.0225
TG18-01	18	< 0.075	0.0375	< 0.045	0.0225
TG19-01	19	< 0.075	0.0375	< 0.045	0.0225
TG20-01	20	< 0.075	0.0375	< 0.045	0.0225
TG21-01	21	< 0.075	0.0375	< 0.045	0.0225
TG22-01	22	< 0.075	0.0375	< 0.045	0.0225
TG23-01	23	< 0.075	0.0375	< 0.045	0.0225
TG24-01	24	0.249	0.249	0.21	0.21
TG25-01	25	< 0.075	0.0375	0.119	0.119
TG26-01	26	0.099	0.099	0.062	0.062
TG27-01	27	< 0.075	0.0375	< 0.045	0.0225
TG28-01	28	< 0.075	0.0375	< 0.045	0.0225
TG29-01	29	< 0.075	0.0375	< 0.045	0.0225
TG30-01	30	0.113	0.113	0.075	0.075
TG31-01	31	0.08	0.08	0.084	0.084
TG32-01	32	0.209	0.209	0.663	0.663
TG33-01	33	0.126	0.126	0.18	0.18
TG34-01	34	0.111	0.111	0.09	0.09
TG35-01	35	0.175	0.175	0.183	0.183
TG36-01	36	0.4	0.4	0.129	0.129
TG37-01	37	< 0.075	0.0375	< 0.045	0.0225
TG38-01D	38	< 0.075	0.0375	< 0.045	0.0225
TG38-01	38	< 0.075	0.0375	< 0.045	0.0225
TG39-01	39	< 0.075	0.0375	0.046	0.046
TG40-01	40	0.268	0.268	0.119	0.119
TG41-01	41	0.333	0.333	0.253	0.253
TG42-01	42	0.259	0.259	0.307	0.307

Table 3 (Continued)

TCLP Lead				TCLP Arsenic	
Sample Number	Grid	Reported Result	Calculation Value*	Reported Result	Calculation Value*
TG43-01	43	0.093	0.093	0.231	0.231
TG44-01	44	0.184	0.184	0.187	0.187
TG45-01	45	0.096	0.096	0.184	0.184
TG46-01	46	< 0.075	0.0375	< 0.045	0.0225
TG47-01D	46	< 0.075	0.0375	< 0.045	0.0225
TG47-01	47	< 0.075	0.0375	< 0.045	0.0225
TG48-01D	47	< 0.075	0.0375	< 0.045	0.0225
TG48-01	48	< 0.075	0.0375	< 0.045	0.0225
TG49-01	49	0.08	0.08	0.093	0.093
TG50-01	50	0.102	0.102	0.293	0.293
TG51-01	51	0.125	0.125	0.393	0.393
TG52-01	52	0.184	0.184	0.135	0.135
TG53-01	53	< 0.075	0.0375	0.109	0.109
TG54-01	54	< 0.075	0.0375	< 0.045	0.0225
TG55-01	55	< 0.075	0.0375	< 0.045	0.0225
TG56-01D	56	< 0.075	0.0375	0.116	0.116
TG56-01	56	< 0.075	0.0375	0.111	0.111
TG57-01	57	< 0.075	0.0375	0.068	0.068
TG58-01	58	< 0.075	0.0375	0.179	0.179
TG59-01	59	< 0.075	0.0375	0.065	0.065
TG60-01	60	0.079	0.079	0.084	0.084
TG61-01	61	0.101	0.101	0.137	0.137
TG62-01	62	< 0.075	0.0375	0.091	0.091
TG63-01	63	< 0.075	0.0375	< 0.045	0.0225
TG64-01	64	< 0.075	0.0375	0.079	0.079
TG65-01	65	< 0.075	0.0375	< 0.045	0.0225
TG66-01D	66	< 0.075	0.0375	< 0.045	0.0225
TG66-01	66	< 0.075	0.0375	< 0.045	0.0225
TG67-01D	67	< 0.075	0.0375	0.049	0.049
TG67-01	67	< 0.075	0.0375	< 0.045	0.0225
TG68-01	68	< 0.075	0.0375	< 0.045	0.0225
TG69-01	69	< 0.075	0.0375	0.066	0.066
TG70-01	70	< 0.075	0.0375	< 0.045	0.0225
TG71-01	71	< 0.075	0.0375	< 0.045	0.0225
TG72-01	72	< 0.075	0.0375	< 0.045	0.0225
UTL		5.00		5.00	
n =		72		72	
mean =		0.075		0.084	
sd =		0.076		0.106	
calc. K =		65.000		46.296	
Percentile		Min. Required N		Min. Required N	
95th		2		2	
99th		2		2	
99.9th		2		3	

* Calculation Value is one half of the Detection Limit for non-detects, otherwise, it is the reported result.

The calculated K values of 65.000 and 46.296 are greater than the tabled value for n=2 (37.094) indicating that the required sample size would, at a minimum, be equal to 2. Therefore, the *a posteriori* sample size determination indicates that the actual sample size of 72 was sufficient to assess compliance with the TCLP limit.

Table 4

Factors $K_{1-\alpha,p}$ for Estimating an Upper $100(1 - \alpha)\%$ Confidence Limit on the p^{th} Percentile of a Normal Distribution

$1 - \alpha = .95$	Percentile		
n	95 th	99 th	99.9 th
2	26.260	37.094	49.276
3	7.656	10.553	13.857
4	5.144	7.042	9.214
5	4.210	5.749	7.509
6	3.711	5.065	6.614
7	3.401	4.643	6.064
8	3.188	4.355	5.689
9	3.032	4.144	5.414
10	2.911	3.981	5.204
11	2.815	3.852	5.036
12	2.736	3.747	4.900
13	2.670	3.659	4.787
14	2.614	3.585	4.690
15	2.566	3.520	4.607
16	2.523	3.463	4.534
17	2.486	3.414	4.471
18	2.455	3.370	4.415
19	2.423	3.331	4.364
20	2.396	3.295	4.319
21	2.371	3.262	4.276
22	2.350	3.233	4.238
23	2.329	3.206	4.204
24	2.309	3.181	4.171
25	2.292	3.158	4.143
30	2.220	3.064	4.022
35	2.166	2.994	3.934

Table 4 (Continued)
 Factors $K_{1-\alpha,p}$ for Estimating an Upper $100(1 - \alpha)\%$ Confidence Limit on the p^{th} Percentile of a Normal Distribution

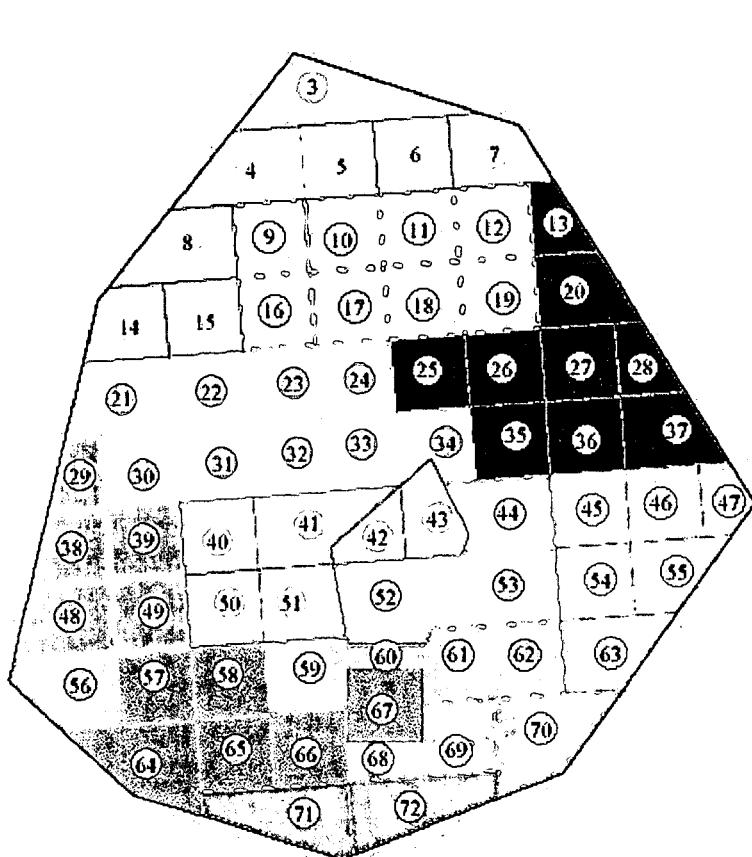
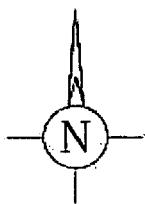
$1 - \alpha = .95$	Percentile		
n	95 th	99 th	99.9 th
40	2.126	2.941	3.866
45	2.092	2.897	3.811
50	2.065	2.863	3.766
60	2.022	2.807	3.695
70	1.990	2.766	3.643
80	1.965	2.733	3.601
90	1.944	2.706	3.567
100	1.927	2.684	3.539
120	1.899	2.649	3.495
145	1.874	2.617	3.455
300	1.800	2.522	3.335
500	1.763	2.475	3.277
∞	1.645	2.326	3.090

3.0 SUMMARY

The results of the verification of treatment sampling and analysis show that the Trap Range soils meet the requirements of the TCLP test for lead (5.0 mg/l) and arsenic (5.0 mg/l) and the EPA Paint Filter Liquids Test. Further, the *a posteriori* sample size test determined that the sample size (72 samples) was sufficient to assess compliance with the TCLP limit.

- 2477

Soil Stabilization Production by Date



	7-15-99		7-21-99		7-28-99		8-3-99
	7-16-99		7-22-99		7-29-99		
	7-19-99		7-26-99		7-30-99		
	7-20-99		7-27-99		8-2-99		

000016

- 2477

Appendix A

Laboratory Reports

000017

WASTE STREAM TECHNOLOGY, INC.

302 Grote Street
Buffalo, NY 14207
(716) 876-5290

-- 2477

Analytical Data Report

Report Date : 07/22/99
Group Number : 9902-218

Prepared For :

Mr. Steve Sharp

Sevenson Environmental Services, Inc.
9245 Calumet Avenue
Suite 101
Munster, IN 46321

Site : FERNALD

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
TG6801 Grid 68	WS54854	Soil	7/19/99	7/21/99	09:30
TG6901 Grid 69	WS54855	Soil	7/19/99	7/21/99	09:30
TG7001 Grid 70	WS54856	Soil	7/19/99	7/21/99	09:30
TG7101 Grid 71	WS54857	Soil	7/19/99	7/21/99	09:30
TG7201 Grid 72	WS54858	Soil	7/19/99	7/21/99	09:30

Sample Status Upon Receipt : No irregularities.

Analytical Services

Number of Samples

Turnaround Time

Analytical Parameters

Paint Filter

5

1 Business Day

TCLP Arsenic & Lead

5

1 Business Day

Report Released By :

Daniel W. Vollmer

Daniel Vollmer, Laboratory QA/QC Officer

000018

ENVIRONMENTAL LABORATORY ACCREDITATION CERTIFICATION NUMBERS

NYSDOH ELAP #11179 NJDEPE #73977 CDHS ELAP #2189



METHODOLOGIES

-- 2477

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

000019

Waste Stream Technology, Inc.**TCLP Metals Analysis Report**

Lead by ICP

SW-846 6010

-- 2477

Site: Fernald

Date Sampled: 07/19/99

Date Received: 07/21/99

Group Number: 9902-218

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 07/21/99

Sample Digested: 07/22/99

Test ID	Client ID	Detection Limit	Result	Date Analyzed
54854	TG6801 Grid 68	0.075	Not detected	07/22/99
54855	TG6901 Grid 69	0.075	Not detected	07/22/99
54856	TG7001 Grid 70	0.075	Not detected	07/22/99
54857	TG7101 Grid 71	0.075	Not detected	07/22/99
54858	TG7201 Grid 72	0.075	Not detected	07/22/99

000020

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Arsenic by ICP

SW-846 6010

- 2477

Site: Fernald

Date Sampled: 07/19/99

Date Received: 07/21/99

Group Number: 9902-218

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 07/21/99

Date Digested: 07/22/99

WST ID	Client ID	Detection Limit	Result	Date Analyzed
WS54854	TG6801 Grid 68	0.045	Not detected	07/22/99
WS54855	TG6901 Grid 69	0.045	0.066	07/22/99
WS54856	TG7001 Grid 70	0.045	Not detected	07/22/99
WS54857	TG7101 Grid 71	0.045	Not detected	07/22/99
WS54858	TG7201 Grid 72	0.045	Not detected	07/22/99

000021

Waste Stream Technology, Inc.

Paint Filter Test
SW-846 9095

-- 2477

Site: Fernald
Date Sampled: 07/19/99
Date Received: 07/21/99

Group Number: 9902-218
Matrix: Soil
Units: Pass/Fail

T ID	Client ID	Detection Limit	Result	Date Analyzed
54854	TG6801 Grid 68	NONE	Passed	07/21/99
54855	TG6901 Grid 69	NONE	Passed	07/21/99
54856	TG7001 Grid 70	NONE	Passed	07/21/99
54857	TG7101 Grid 71	NONE	Passed	07/21/99
54858	TG7201 Grid 72	NONE	Passed	07/21/99

000022

WASTE STREAM
TECHNOLOGY

-- 2477

Quality Control Result Reports

000023

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

2477

Site: Fernald
Site Sampled: NA
Site Received: NA

Group Number: 9902-218
Units: mg/L
TCLP Extraction Date: 07/21/99

WST ID: MBTC515-T1
Client ID: NA
Digestion Date: 07/22/99

Alyte	Detection Limit	Result	Date Analyzed	Analysis Method
TCLP Method Blank	0.009	Not detected	07/22/99	SW-846 6010
TCLP Method Blank	0.015	Not detected	07/22/99	SW-846 6010

B denotes Method Blank
N denotes Not Applicable

000024



- 2477

-- 2477

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-218
Report Units : % Recovery

Lab ID Number	RFTC515 T1		
Client ID	NA		
TCLP Date	7/21/99		
Date Digested	7/22/99		
Date Analyzed	7/22/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	103	SW-846 6010
Arsenic	85 - 115	115	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000025

Waste Stream Technology, Inc.

-- 2477

**TCLP Metals Analysis Result Report
Duplicate Sample Analysis Summary**

Site : Fernald

Group Number.: 9902-218

Date Sampled : 7/19/99

Report Units : mg/L

Date Received : 7/21/99

Matrix : TCLP Extract

Lab ID Number	WS54854	WS54854 Dup	RPD (%)	RPD QC Limits (%)
Client ID	TG6801 Grid 68	TG6801 Grid 68		
TCLP Date	7/21/99	7/21/99		
Date Digested	7/22/99	7/22/99		
Date Analyzed	7/22/99	7/22/99		
Analyte	Initial Result	Duplicate Result		
Lead	< 0.075	< 0.075	< 0.1	25
Arsenic	< 0.045	< 0.045	< 0.1	25

Dup denotes Duplicate Sample.

000026

Waste Stream Technology, Inc. -- 2477
TCLP Metals Analysis Result Report
Matrix Spike Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-218
Report Units : % Recovery

Lab ID Number	WS54854 MS		
Client ID	TG6801 Grid 68		
TCLP Date	7/21/99		
Date Digested	7/22/99		
Date Analyzed	7/22/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	122	SW-846 6010
Arsenic	75 - 125	114	SW-846 6010

MS denotes Matrix Spike.

000027

Waste Stream Technology, Inc.**TCLP Metals Analysis Result Report**

2477

Post-Digestion Spike Analysis Summary

Site : Fernald

Group Number : 9902-218

Matrix : TCLP Extract

Report Units : % Recovery

Spike Amount = 5.0 mg/L

Lab ID Number	WS54856		
Client ID	TG7001 Grid 70		
TCLP Date	7/21/99		
Date Digested	7/22/99		
Date Analyzed	7/22/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	104	SW-846 6010
Arsenic	85 - 115	105	SW-846 6010

000028

WASTE STREAM

TECHNOLOGY

302 GROTE STREET
BUFFALO, NY 14207
(716) 876-5290

CSL-99-0818

9902-218

SCSJ12 AIP2 TRAP
2671B=PSR 0007 RANGE

CHAIN OF CUSTODY RECORD

PROJECT NO:	SITE NAME:		SIZE & NO. OF CONTAINERS	TESTS			PRESERVATIVES	REMARKS
	3	FERNALD		TCLP ARSENIC	TCLP LEAD	PAINT FILTER		
SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION		
TG6801	7/19/99	1515	X	Soil	GRID 68	1x50ml	X X X 2003577510	None NS548 54
TG6901		1505			69		200357757	DUICK 55
TG7001		1459			70		200357758	TURM 56
TG7101		1520			71		200357759	TURM 57
TG7201		1511	X	V	72	V	X X X 200357760	AROOX 58
					nothing follows	SP 7-20-99		
620000								
620002								

RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
<i>GL Uts</i>	7/19/99 1540	Joh Yandis	<i>Joh Yandis</i>	7-20-99 0850	<i>Demet Esen SP</i>
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
<i>Lentz</i>	7-20-99 1300	Shipping bag	Time	7/21/99 9:30	<i>Sidra Mift</i>
SPECIAL INSTRUCTIONS:					
TURNAROUND TIME:	ASAP				

WASTE STREAM TECHNOLOGY, INC.

302 Grote Street
Buffalo, NY 14207
(716) 876-5290

- 2477

Analytical Data Report

Report Date : 07/27/99
Group Number : 9902-221

Prepared For :

Mr. Steve Sharp

Sevenson Environmental Services, Inc.
9245 Calumet Avenue
Suite 101
Munster, IN 46321

Site : FERNALD

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
TG6601 Grid 66	WS54954	Soil	07/22/99	07/26/99	08:45
TG6501 Grid 65	WS54955	Soil	07/22/99	07/26/99	08:45
TG6401 Grid 64	WS54956	Soil	07/22/99	07/26/99	08:45
TG6301 Grid 63	WS54957	Soil	07/22/99	07/26/99	08:45
TG6201 Grid 62	WS54958	Soil	07/22/99	07/26/99	08:45
TG6101 Grid 61	WS54959	Soil	07/22/99	07/26/99	08:45
TG6001 Grid 60	WS54960	Soil	07/22/99	07/26/99	08:45
TG5901 Grid 59	WS54961	Soil	07/22/99	07/26/99	08:45
TG5801 Grid 58	WS54962	Soil	07/22/99	07/26/99	08:45
TG5701 Grid 57	WS54963	Soil	07/22/99	07/26/99	08:45
TG5601 Grid 56	WS54964	Soil	07/22/99	07/26/99	08:45
TG5601D Grid 56	WS54965	Soil	07/22/99	07/26/99	08:45
TG6601D Grid 66	WS54966	Soil	07/22/99	07/26/99	08:45

Sample Status Upon Receipt : No irregularities.

Analytical Parameters

Paint Filter
TCLP Arsenic & Lead

Analytical Services

Number of Samples

13

13

Turnaround Time

1 Business Day
1 Business Day

Report Released By : Daniel W. Vollmer

Daniel Vollmer, Laboratory QA/QC Officer

000030

ENVIRONMENTAL LABORATORY ACCREDITATION CERTIFICATION NUMBERS

NYSDOH ELAP #11179 NJDEPE #73977 CDHS ELAP #2189



-- 2477

METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

000031

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Lead by ICP
SW-846 6010

- 2477

Site: Fernald

Date Sampled: 07/22/99

Date Received: 07/26/99

Group Number: 9902-221

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 07/26/99

Date Digested: 07/27/99

WST ID	Client ID	Detection Limit	Result	Date Analyzed
WS54954	TG6601 Grid 66	0.075	Not detected	07/27/99
WS54955	TG6501 Grid 65	0.075	Not detected	07/27/99
WS54956	TG6401 Grid 64	0.075	Not detected	07/27/99
WS54957	TG6301 Grid 63	0.075	Not detected	07/27/99
WS54958	TG6201 Grid 62	0.075	Not detected	07/27/99
WS54959	TG6101 Grid 61	0.075	0.101	07/27/99
WS54960	TG6001 Grid 60	0.075	0.079	07/27/99
WS54961	TG5901 Grid 59	0.075	Not detected	07/27/99
WS54962	TG5801 Grid 58	0.075	Not detected	07/27/99
WS54963	TG5701 Grid 57	0.075	Not detected	07/27/99
WS54964	TG5601 Grid 56	0.075	Not detected	07/27/99
WS54965	TG5601D Grid 56	0.075	Not detected	07/27/99
WS54966	TG6601D Grid 66	0.075	Not detected	07/27/99

000032

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.**TCLP Metals Analysis Report**

Arsenic by ICP

SW-846 6010

-- 2477

Site: Fernald

Date Sampled: 07/22/99

Date Received: 07/26/99

Group Number: 9902-221

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 07/26/99

Date Digested: 07/27/99

WST ID	Client ID	Detection Limit	Result	Date Analyzed
WS54954	TG6601 Grid 66	0.045	Not detected	07/27/99
WS54955	TG6501 Grid 65	0.045	Not detected	07/27/99
WS54956	TG6401 Grid 64	0.045	0.079	07/27/99
WS54957	TG6301 Grid 63	0.045	Not detected	07/27/99
WS54958	TG6201 Grid 62	0.045	0.091	07/27/99
WS54959	TG6101 Grid 61	0.045	0.137	07/27/99
WS54960	TG6001 Grid 60	0.045	0.084	07/27/99
WS54961	TG5901 Grid 59	0.045	0.065	07/27/99
WS54962	TG5801 Grid 58	0.045	0.179	07/27/99
WS54963	TG5701 Grid 57	0.045	0.068	07/27/99
WS54964	TG5601 Grid 56	0.045	0.111	07/27/99
WS54965	TG5601D Grid 56	0.045	0.116	07/27/99
WS54966	TG6601D Grid 66	0.045	Not detected	07/27/99

000033

Waste Stream Technology, Inc.

Paint Filter Test
SW-846 9095

2477

Site: Fernald
Date Sampled: 07/22/99
Date Received: 07/26/99

Group Number: 9902-221
Matrix: Soil
Units: Pass/Fail

ST ID	Client ID	Detection Limit	Result	Date Analyzed
/S54954	TG6601 Grid 66	NA	Passed	07/26/99
/S54955	TG6501 Grid 65	NA	Passed	07/26/99
/S54956	TG6401 Grid 64	NA	Passed	07/26/99
/S54957	TG6301 Grid 63	NA	Passed	07/26/99
/S54958	TG6201 Grid 62	NA	Passed	07/26/99
/S54959	TG6101 Grid 61	NA	Passed	07/26/99
/S54960	TG6001 Grid 60	NA	Passed	07/26/99
/S54961	TG5901 Grid 59	NA	Passed	07/26/99
/S54962	TG5801 Grid 58	NA	Passed	07/26/99
/S54963	TG5701 Grid 57	NA	Passed	07/26/99
/S54964	TG5601 Grid 56	NA	Passed	07/26/99
/S54965	TG5601D Grid 56	NA	Passed	07/26/99
/S54966	TG6601D Grid 66	NA	Passed	07/26/99

000034

- 2477

Quality Control Result Reports

000035

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Method Blank Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract

Group Number : 9902-221
Report Units : mg/L

Lab ID Number	MBTC517 T1		
Client ID	NA		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99		
Analyte	Detection Limit	Result	Analysis Method
Lead	0.075	< 0.075	SW-846 6010
Arsenic	0.045	< 0.045	SW-846 6010

MB denotes Method Blank.

NA denotes Not Applicable.

000036

Waste Stream Technology, Inc. -- 2477
TCLP Metals Analysis Result Report
Method Blank Analysis Summary

Site : Fernald
Matrix : TCLP Extract

Group Number : 9902-221
Report Units : mg/L

Lab ID Number	MBTC518 T1		
Client ID	NA		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99	Analysis Method	SW-846 6010
Analyte	Detection Limit	Result	
Lead	0.075	< 0.075	SW-846 6010
Arsenic	0.045	< 0.045	SW-846 6010

MB denotes Method Blank.

NA denotes Not Applicable.

000037

Waste Stream Technology, Inc. — 2477
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-221
Report Units : % Recovery

Lab ID Number	RFTC517 T1		
Client ID	NA		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	101	SW-846 6010
Arsenic	85 - 115	111	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000038

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-221
Report Units : % Recovery

Lab ID Number	RFTC518 T1		
Client ID	NA		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	99	SW-846 6010
Arsenic	85 - 115	108	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000039

Waste Stream Technology, Inc.

-- 2477

TCLP Metals Analysis Result Report
Duplicate Sample Analysis SummarySite : Fernald
Date Sampled : 7/22/99
Date Received : 7/26/99Group Number : 9902-221
Report Units : mg/L
Matrix : TCLP Extract

Job ID Number	WS54966	WS54966 Dup	RPD (%)	RPD QC Limits (%)
Client ID	TG6601D Grid 68	TG6601D Grid 68		
TCLP Date	7/26/99	7/26/99		
Date Digested	7/27/99	7/27/99		
Date Analyzed	7/27/99	7/27/99		
Analyte	Initial Result	Duplicate Result		
Cadmium	< 0.075	< 0.075	< 0.1	25
Chromium	< 0.045	< 0.045	< 0.1	25

Dup denotes Duplicate Sample.

000040

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Matrix Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-221
Report Units : % Recovery

Lab ID Number	WS54966 MS		
Client ID	TG6601D Grid 66		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	103	SW-846 6010
Arsenic	75 - 125	108	SW-846 6010

MS denotes Matrix Spike.

000041

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Post-Digestion Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 5.0 mg/L

Group Number : 9902-221
Report Units : % Recovery

Lab ID Number	WS54962		
Client ID	TG5801 Grid 58		
TCLP Date	7/26/99		
Date Digested	7/27/99		
Date Analyzed	7/27/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	98	SW-846 6010
Arsenic	85 - 115	99	SW-846 6010

000042

TECHNOLOGY

BUFFALO, NY 14207
(716) 876-5290

5C512

Mike Henner

CHAIN OF CUSTODY RECORD

20713 Trap Range Stabilization

PROJECT NO:

SITE NAME:

E598

SAMPLERS (SIGNATURE):

GL (Ltg)

SIZE &
NO. OF
CONTAINERSTCP LEAD
TCP ARGONIC
PAINT FILTER

PRESERVATIVES

REMARKS

SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION	SIZE & NO. OF CONTAINERS	TCP LEAD	TCP ARGONIC	PAINT FILTER	PRESERVATIVES	REMARKS
TG6601	7/21/99	0809	X		Soil	GRID 66	1x 500ml	X	X	X		200357870
TG6501		0823				65						55
TG6401		0830				64						56
TG6301		0738				63						57
TG6201		0739				62						58
TG6101		0741				61						59
TG6001		0747				60						60
TG5901		0756				59						61
TG5801		0817				58						62
TG5701		0829				57						63
TG5601		0834				56						64
TG6601	✓	0809	X	↓		66	↓	X	X	X		200357881
	✓											65
	✓											66

RELINQUISHED BY (SIGNATURE)

DATE/TIME

RECEIVED BY (SIGNATURE)

SPECIAL INSTRUCTIONS

TURNAROUND TIME 14 DAY

247

LAB USE: REFRIGERATOR #

SHELF #

GROUP #

DUE DATE

WASTE STREAM TECHNOLOGY, INC.

302 Grote Street
Buffalo, NY 14207
(716) 876-5290

-- 2477

Analytical Data Report

Report Date : 07/30/99
Group Number : 9902-223

Prepared For :

Mr. Steve Sharp

Sevenson Environmental Services, Inc.
9245 Calumet Avenue
Suite 101
Munster, IN 46321

Site : Fernald

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
TG67-01 Grid #67	WS55064	Soil	7/28/99	7/29/99	09:00
TG55-01 Grid #55	WS55065	Soil	7/28/99	7/29/99	09:00
TG54-01 Grid #54	WS55066	Soil	7/28/99	7/29/99	09:00
TG53-01 Grid #53	WS55067	Soil	7/28/99	7/29/99	09:00
TG52-01 Grid #52	WS55068	Soil	7/28/99	7/29/99	09:00
TG51-01 Grid #51	WS55069	Soil	7/28/99	7/29/99	09:00
TG50-01 Grid #50	WS55070	Soil	7/28/99	7/29/99	09:00
TG49-01 Grid #49	WS55071	Soil	7/28/99	7/29/99	09:00
TG47-01 Grid #47	WS55072	Soil	7/28/99	7/29/99	09:00
TG46-01 Grid #46	WS55073	Soil	7/28/99	7/29/99	09:00
TG45-01 Grid #45	WS55074	Soil	7/28/99	7/29/99	09:00
TG44-01 Grid #44	WS55075	Soil	7/28/99	7/29/99	09:00
TG43-01 Grid #43	WS55076	Soil	7/28/99	7/29/99	09:00
TG42-01 Grid #42	WS55077	Soil	7/28/99	7/29/99	09:00
TG41-01 Grid #41	WS55078	Soil	7/28/99	7/29/99	09:00
TG40-01 Grid #40	WS55079	Soil	7/28/99	7/29/99	09:00
TG39-01 Grid #39	WS55080	Soil	7/28/99	7/29/99	09:00
TG67-01D Grid #67	WS55081	Soil	7/28/99	7/29/99	09:00
TG47-01D Grid #47	WS55082	Soil	7/28/99	7/29/99	09:00

Sample Status Upon Receipt : No irregularities.

Analytical Services

Number of Samples

Analytical Parameters	Number of Samples	Turnaround Time
Paint Filter	19	1 Business Day
TCLP Arsenic & Lead	19	1 Business Day

Report Released By : Daniel W. Vollmer
Daniel Vollmer, Laboratory QA/QC Officer

000044

ENVIRONMENTAL LABORATORY ACCREDITATION CERTIFICATION NUMBERS

NYSDOH ELAP #11179 NJDEPE #73977 CDHS ELAP #2189



-- 2477

METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

000045

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

Paint Filter Test

SW-846 9095

-- 2477

: Fernald
e Sampled: 07/28/99
e Received: 07/29/99

Group Number: 9902-223
Matrix: Soil
Units: Pass/Fail

T ID	Client ID	Detection Limit	Result	Date Analyzed
55064	TG67-01 Grid #67	NA	Passed	07/29/99
55065	TG55-01 Grid #55	NA	Passed	07/29/99
55066	TG54-01 Grid #54	NA	Passed	07/29/99
55067	TG53-01 Grid #53	NA	Passed	07/29/99
55068	TG52-01 Grid #52	NA	Passed	07/29/99
55069	TG51-01 Grid #51	NA	Passed	07/29/99
55070	TG50-01 Grid #50	NA	Passed	07/29/99
55071	TG49-01 Grid #49	NA	Passed	07/29/99
55072	TG47-01 Grid #47	NA	Passed	07/29/99
55073	TG46-01 Grid #46	NA	Passed	07/29/99
55074	TG45-01 Grid #45	NA	Passed	07/29/99
55075	TG44-01 Grid #44	NA	Passed	07/29/99
55076	TG43-01 Grid #43	NA	Passed	07/29/99
55077	TG42-01 Grid #42	NA	Passed	07/29/99
55078	TG41-01 Grid #41	NA	Passed	07/29/99
55079	TG40-01 Grid #40	NA	Passed	07/29/99
55080	TG39-01 Grid #39	NA	Passed	07/29/99
55081	TG67-01D Grid #67	NA	Passed	07/29/99
55082	TG47-01D Grid #47	NA	Passed	07/29/99

000046

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Arsenic by ICP

SW-846 6010

— 2477

Group Number: 9902-223

Units: mg/L

Matrix: TCLP Extract(s)

Site: Fernald
Date Sampled: 07/28/99
Date Received: 07/29/99

TCLP Extraction Date: 07/29/99
Date Digested: 07/30/99

ID	Client ID	Detection Limit	Result	Date Analyzed
55064	TG67-01 Grid #67	0.045	Not detected	07/30/99
55065	TG55-01 Grid #55	0.045	Not detected	07/30/99
55066	TG54-01 Grid #54	0.045	Not detected	07/30/99
55067	TG53-01 Grid #53	0.045	0.109	07/30/99
55068	TG52-01 Grid #52	0.045	0.135	07/30/99
55069	TG51-01 Grid #51	0.045	0.393	07/30/99
55070	TG50-01 Grid #50	0.045	0.293	07/30/99
55071	TG49-01 Grid #49	0.045	0.093	07/30/99
55072	TG47-01 Grid #47	0.045	Not detected	07/30/99
55073	TG46-01 Grid #46	0.045	Not detected	07/30/99
55074	TG45-01 Grid #45	0.045	0.184	07/30/99
55075	TG44-01 Grid #44	0.045	0.187	07/30/99
55076	TG43-01 Grid #43	0.045	0.231	07/30/99
55077	TG42-01 Grid #42	0.045	0.307	07/30/99
55078	TG41-01 Grid #41	0.045	0.253	07/30/99
55079	TG40-01 Grid #40	0.045	0.119	07/30/99
55080	TG39-01 Grid #39	0.045	0.046	07/30/99
55081	TG67-01D Grid #67	0.045	0.049	07/30/99
55082	TG47-01D Grid #47	0.045	Not detected	07/30/99

000047

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Lead by ICP

SW-846 6010

-- 2477

Fernald

Sampled: 07/28/99

Received: 07/29/99

Group Number: 9902-223

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 07/29/99

Sample Digested: 07/30/99

WT ID	Client ID	Detection Limit	Result	Date Analyzed
55064	TG67-01 Grid #67	0.075	Not detected	07/30/99
55065	TG55-01 Grid #55	0.075	Not detected	07/30/99
55066	TG54-01 Grid #54	0.075	Not detected	07/30/99
55067	TG53-01 Grid #53	0.075	Not detected	07/30/99
55068	TG52-01 Grid #52	0.075	0.184	07/30/99
55069	TG51-01 Grid #51	0.075	0.125	07/30/99
55070	TG50-01 Grid #50	0.075	0.102	07/30/99
55071	TG49-01 Grid #49	0.075	0.080	07/30/99
55072	TG47-01 Grid #47	0.075	Not detected	07/30/99
55073	TG46-01 Grid #46	0.075	Not detected	07/30/99
55074	TG45-01 Grid #45	0.075	0.096	07/30/99
55075	TG44-01 Grid #44	0.075	0.184	07/30/99
55076	TG43-01 Grid #43	0.075	0.093	07/30/99
55077	TG42-01 Grid #42	0.075	0.259	07/30/99
55078	TG41-01 Grid #41	0.075	0.333	07/30/99
55079	TG40-01 Grid #40	0.075	0.268	07/30/99
55080	TG39-01 Grid #39	0.075	Not detected	07/30/99
55081	TG67-01D Grid #67	0.075	Not detected	07/30/99
55082	TG47-01D Grid #47	0.075	Not detected	07/30/99

000048

-- 2477

Quality Control Result Reports

000049

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

-- 2477

Site: Fernald
Site Sampled: NA
Site Received: NA

Group Number: 9902-223
Units: mg/L
TCLP Extraction Date: 07/29/99

WST ID: MBTC525 T1
Client ID: NA
Digestion Date: 07/30/99

alyte	Detection Limit	Result	Date Analyzed	Analysis Method
TCLP Method Blank	0.009	Not detected	07/30/99	SW-846 6010
TCLP Method Blank	0.015	Not detected	07/30/99	SW-846 6010

denotes Method Blank
denotes Not Applicable

000050

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

-- 2477

: Fernald
e Sampled: NA
e Received: NA

Group Number: 9902-223
Units: mg/L
TCLP Extraction Date: 07/29/99

WST ID: MBTC526 T1

Client ID: NA

Digestion Date: 07/30/99

alyte	Detection Limit	Result	Date Analyzed	Analysis Method
TCLP Method Blank	0.009	Not detected	07/30/99	SW-846 6010
TCLP Method Blank	0.015	Not detected	07/30/99	SW-846 6010

denotes Method Blank
denotes Not Applicable

000051

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc. - 2477
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-223
Report Units : % Recovery

Lab ID Number	RFTC525 T1		
Client ID	NA		
TCLP Date	7/29/99		
Date Digested	7/30/99		
Date Analyzed	7/30/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	99	SW-846 6010
Arsenic	85 - 115	110	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000052

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report - 2477
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-223
Report Units : % Recovery

Lab ID Number	RFTC526 T1		
Client ID	NA		
TCLP Date	7/29/99		
Date Digested	7/30/99		
Date Analyzed	7/30/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	101	SW-846 6010
Arsenic	85 - 115	111	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000053

Waste Stream Technology, Inc.

TCLP Metals Analysis Result Report Duplicate Sample Analysis Summary

-- 2477

: Fernald
e Sampled : 7/28/99
e Received : 7/29/99

Group Number : 9902-223
Report Units : mg/L
Matrix : TCLP Extract

ID Number	WS55082	WS55082 Dup	RPD (%)	RPD QC Limits (%)
Sample ID	TG47-01D Grid 47	TG47-01D Grid 47		
Sample Date	7/29/99	7/29/99		
Sample Digested	7/30/99	7/30/99		
Sample Analyzed	7/30/99	7/30/99		
Analyte	Initial Result	Duplicate Result		
Lead	< 0.075	< 0.075	< 0.1	25
Chromic	< 0.045	< 0.045	< 0.1	25

» denotes Duplicate Sample.

000054

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report -- 2477
Matrix Spike Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-223
Report Units : % Recovery

Lab ID Number	WS55082 MS		
Client ID	TG47-01D Grid 47		
TCLP Date	7/29/99		
Date Digested	7/30/99		
Date Analyzed	7/30/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	106	SW-846 6010
Arsenic	75 - 125	110	SW-846 6010

MS denotes Matrix Spike.

000055

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Post-Digestion Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 5.0 mg/L

Group Number : 9902-223
Report Units : % Recovery

Lab ID Number	WS55073		
Client ID	TG46-01 Grid 46		
TCLP Date	7/29/99		
Date Digested	7/30/99		
Date Analyzed	7/30/99	Analysis Method	
Analyte	QC Limits	% Recovery	
Lead	85 - 115	101	SW-846 6010
Arsenic	85 - 115	102	SW-846 6010

000056

9902-023

1000011501

CHAIN OF CUSTODY RECORD

PROJECT NO: E598	SITE NAME: FERNALD						SIZE & NO. OF CONTAINERS	TESTS				PRESERVATIVES	REMARKS		
								TCLP	Pb	As	PAINT			FLTR	
SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION									
✓ T667-01	7-28-99	0835		X	SOIL	GRID # 67	1x 500 ml	X	X	X			WS555064	200358136	
✓ T655-01		0830				- 55							65	200358163	
✓ T654-01		0824				- 54							66	200358164	
✓ T653-01		0815				- 53							67	200358165	
✓ T652-01		0810				- 52							68	200358166	
✓ T651-01		0752				- 51							69	200358167	
✓ T650-01		0741				- 50							70	200358168	
✓ T649-01		0737				- 49							71	200358169	
✓ T648-01		0838				- 47							72	200358170	
✓ T646-01		0832				- 46							73	200358171	
✓ T645-01		0825				- 45							74	200358172	
✓ T644-01		0818				- 44							75	200358173	
✓ T643-01	V	0740	X	✓		- 43	✓	X	X	X			76	200358174	
RELINQUISHED BY (SIGNATURE)				DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)				DATE/TIME		RECEIVED BY (SIGNATURE)	
<i>GL 167</i>				7-28-99 0900		<i>Rebecca Scholl</i>		<i>Rebecca Scholl</i>				7-28-99 1030		<i>David SPL</i>	
RELINQUISHED BY (SIGNATURE)				DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)				DATE/TIME		RECEIVED BY (SIGNATURE)	
<i>John Hefner/SPL</i>				7-28-99 1307		<i>Shipping Day Time</i>						7-28-99 9:00		<i>Shipping Day</i>	
SPECIAL INSTRUCTIONS:															
TURNAROUND TIME		RUSH 1BD 8/29/99													

LAB USE: REFRIGERATOR # 112111

SHELF #

GROUP #

DUE DATE

9902-223

PROJECT NO:		SITE NAME:		SIZE & NO. OF CONTAINERS	PRESERVATIVES				REMARKS		
E598		FERNALD			TCLP P1	TCLP P5	CANT FILTER				
SAMPLERS (SIGNATURE):	GL WYK		SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION		
✓ T643-01	7-28-99	0730	X	SOIL	GRID # 42			1x 500ml	X X X	WSS550 77	200358175
✓ T644-01		0734			41					78	200358176
✓ T645-01		0744			40					79	200358177
✓ T639-01		0730			39					80	200358178
✓ T667-01		0805			67					81	200358179
✓ T647-01	7-28-99	0838	X	X	47			X X X		82	200358180
T648-01	7-28-99	0838	X	X	48			X X X		Spec 10119	DELETED
<u>Nothing follows RS 7/28/99</u>											
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)						
GL WYK	7-28-99 0900	Rebecca Scholl	Rubens Scholl	7-28-99 1030	Rebecca Scholl						
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)						
Karen Ellerbe CPL	7-28-99 1300	Shipping Day Time	→	7-29-99 9:00	Sondra Wright						
SPECIAL INSTRUCTIONS: RUSH 1BD 81-7124-199											
TURNAROUND TIME: 4-7-7											

LAB USE: REFRIGERATOR #
1-61364

SHELF #

GROUP #

DUE DATE

Analytical Data Report
Report Date : 08/06/99
Group Number : 9902-226

— 2 4 7 7

Site : FERNALD

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
TG48-01 Grid #48	WS55215	Soil	08/02/99	08/03/99	09:15
TG38-01 Grid #38	WS55216	Soil	08/02/99	08/03/99	09:15
TG37-01 Grid #37	WS55217	Soil	08/02/99	08/03/99	09:15
TG36-01 Grid #36	WS55218	Soil	08/02/99	08/03/99	09:15
TG35-01 Grid #35	WS55219	Soil	08/02/99	08/03/99	09:15
TG34-01 Grid #34	WS55220	Soil	08/02/99	08/03/99	09:15
TG33-01 Grid #33	WS55221	Soil	08/02/99	08/03/99	09:15
TG32-01 Grid #32	WS55222	Soil	08/02/99	08/03/99	09:15
TG31-01 Grid #31	WS55223	Soil	08/02/99	08/03/99	09:15
TG30-01 Grid #30	WS55224	Soil	08/02/99	08/03/99	09:15
TG29-01 Grid #29	WS55225	Soil	08/02/99	08/03/99	09:15
TG28-01 Grid #28	WS55226	Soil	08/02/99	08/03/99	09:15
TG27-01 Grid #27	WS55227	Soil	08/02/99	08/03/99	09:15
TG26-01 Grid #26	WS55228	Soil	08/02/99	08/03/99	09:15
TG25-01 Grid #25	WS55229	Soil	08/02/99	08/03/99	09:15
TG24-01 Grid #24	WS55230	Soil	08/02/99	08/03/99	09:15
TG23-01 Grid #23	WS55231	Soil	08/02/99	08/03/99	09:15
TG22-01 Grid #22	WS55232	Soil	08/02/99	08/03/99	09:15
TG21-01 Grid #21	WS55233	Soil	08/02/99	08/03/99	09:15
TG20-01 Grid #20	WS55234	Soil	08/02/99	08/03/99	09:15
TG38-01 D Grid #38	WS55235	Soil	08/02/99	08/03/99	09:15
TG48-01 D Grid #48	WS55236	Soil	08/02/99	08/03/99	09:15
TG12-01 Grid #12	WS55237	Soil	08/02/99	08/03/99	09:15
TG13-01 Grid #13	WS55238	Soil	08/02/99	08/03/99	09:15
TG18-01 Grid #18	WS55239	Soil	08/02/99	08/03/99	09:15
TG19-01 Grid #19	WS55240	Soil	08/02/99	08/03/99	09:15

Sample Status Upon Receipt : No irregularities.

000059

-- 2477

METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

000060

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.**TCLP Metals Analysis Report**

Arsenic by ICP

SW-846 6010

-- 2477

Site: FERNALD
Date Sampled: 08/02/99
Date Received: 08/03/99

Group Number: 9902-226
Units: mg/L
Matrix: TCLP Extract(s)

TCLP Extraction Date: 08/03/99
Date Digested: 08/04/99

ST ID	Client ID	Detection Limit	Result	Date Analyzed
S55215	TG48-01 GRID #48	0.045	Not detected	08/04/99
S55216	TG38-01 GRID #38	0.045	Not detected	08/04/99
S55217	TG37-01 GRID #37	0.045	Not detected	08/04/99
S55218	TG36-01 GRID #36	0.045	0.129	08/04/99
S55219	TG35-01 GRID #35	0.045	0.183	08/04/99
S55220	TG34-01 GRID #34	0.045	0.090	08/04/99
S55221	TG33-01 GRID #33	0.045	0.180	08/04/99
S55222	TG32-01 GRID #32	0.045	0.663	08/04/99
S55223	TG31-01 GRID #31	0.045	0.084	08/04/99
S55224	TG30-01 GRID #30	0.045	0.075	08/04/99
S55225	TG29-01 GRID #29	0.045	Not detected	08/04/99
S55226	TG28-01 GRID #28	0.045	Not detected	08/04/99
S55227	TG27-01 GRID #27	0.045	Not detected	08/04/99

000061**WASTE STREAM
TECHNOLOGY**

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Arsenic by ICP

SW-846 6010

- 2477

Site: FERNALD

Date Sampled: 08/02/99

Date Received: 08/03/99

Group Number: 9902-226

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 08/04/99

Date Digested: 08/05/99

ST ID	Client ID	Detection Limit	Result	Date Analyzed
/S55228	TG26-01 GRID #26	0.045	0.062	08/05/99
/S55229	TG25-01 GRID #25	0.045	0.119	08/05/99
/S55230	TG24-01 GRID #24	0.045	0.210	08/05/99
/S55231	TG23-01 GRID #23	0.045	Not detected	08/05/99
/S55232	TG22-01 GRID #22	0.045	Not detected	08/05/99
/S55233	TG21-01 GRID #21	0.045	Not detected	08/05/99
/S55234	TG20-01 GRID #20	0.045	Not detected	08/05/99
/S55235	TG38-01-DUP GRID #38	0.045	Not detected	08/05/99
/S55236	TG48-01-DUP GRID #48	0.045	Not detected	08/05/99
/S55237	TG12-01 GRID #12	0.045	0.059	08/05/99
/S55238	TG13-01 GRID #13	0.045	Not detected	08/05/99
/S55239	TG18-01 GRID #18	0.045	Not detected	08/05/99
/S55240	TG19-01 GRID #19	0.045	Not detected	08/05/99

000062



Waste Stream Technology, Inc.**TCLP Metals Analysis Report**

Lead by ICP

SW-846 6010

-- 2477

: FERNALD
e Sampled: 08/02/99
e Received: 08/03/99

Group Number: 9902-226

Units: mg/L

Matrix: TCLP Extract(s)

.P Extraction Date: 08/03/99
e Digested: 08/04/99

T ID	Client ID	Detection Limit	Result	Date Analyzed
55215	TG48-01 GRID #48	0.075	Not detected	08/04/99
55216	TG38-01 GRID #38	0.075	Not detected	08/04/99
55217	TG37-01 GRID #37	0.075	Not detected	08/04/99
55218	TG36-01 GRID #36	0.075	0.400	08/04/99
55219	TG35-01 GRID #35	0.075	0.175	08/04/99
55220	TG34-01 GRID #34	0.075	0.111	08/04/99
55221	TG33-01 GRID #33	0.075	0.126	08/04/99
55222	TG32-01 GRID #32	0.075	0.209	08/04/99
55223	TG31-01 GRID #31	0.075	0.080	08/04/99
55224	TG30-01 GRID #30	0.075	0.113	08/04/99
55225	TG29-01 GRID #29	0.075	Not detected	08/04/99
55226	TG28-01 GRID #28	0.075	Not detected	08/04/99
55227	TG27-01 GRID #27	0.075	Not detected	08/04/99

000063



Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Lead by ICP

SW-846 6010

2477

Group Number: 9902-226

Units: mg/L

Matrix: TCLP Extract(s)

Site: FERNALD
Date Sampled: 08/02/99
Date Received: 08/03/99

TCLP Extraction Date: 08/04/99

Date Digested: 08/05/99

ST ID	Client ID	Detection Limit	Result	Date Analyzed
355228	TG26-01 GRID #26	0.075	0.099	08/05/99
355229	TG25-01 GRID #25	0.075	Not detected	08/05/99
355230	TG24-01 GRID #24	0.075	0.249	08/05/99
355231	TG23-01 GRID #23	0.075	Not detected	08/05/99
355232	TG22-01 GRID #22	0.075	Not detected	08/05/99
355233	TG21-01 GRID #21	0.075	Not detected	08/05/99
355234	TG20-01 GRID #20	0.075	Not detected	08/05/99
355235	TG38-01-DUP GRID #38	0.075	Not detected	08/05/99
355236	TG48-01-DUP GRID #48	0.075	Not detected	08/05/99
355237	TG12-01 GRID #12	0.075	Not detected	08/05/99
355238	TG13-01 GRID #13	0.075	Not detected	08/05/99
355239	TG18-01 GRID #18	0.075	Not detected	08/05/99
355240	TG19-01 GRID #19	0.075	Not detected	08/05/99

000064

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

Paint Filter Test

SW-846 9095

-- 2477

Site: FERNALD
Sampled: 08/02/99
Received: 08/03/99

Group Number: 9902-226
Matrix: Soil
Units: Pass/Fail

Test ID	Client ID	Detection Limit	Result	Date Analyzed
55215	TG48-01 GRID #48	NA	Passed*	08/03/99
55216	TG38-01 GRID #38	NA	Passed*	08/03/99
55217	TG37-01 GRID #37	NA	Passed*	08/03/99
55218	TG36-01 GRID #36	NA	Passed*	08/03/99
55219	TG35-01 GRID #35	NA	Passed*	08/03/99
55220	TG34-01 GRID #34	NA	Passed*	08/03/99
55221	TG33-01 GRID #33	NA	Passed*	08/03/99
55222	TG32-01 GRID #32	NA	Passed*	08/03/99
55223	TG31-01 GRID #31	NA	Passed*	08/03/99
55224	TG30-01 GRID #30	NA	Passed*	08/03/99
55225	TG29-01 GRID #29	NA	Passed*	08/03/99
55226	TG28-01 GRID #28	NA	Passed*	08/03/99
55227	TG27-01 GRID #27	NA	Passed*	08/03/99
55228	TG26-01 GRID #26	NA	Passed*	08/03/99
55229	TG25-01 GRID #25	NA	Passed*	08/03/99
55230	TG24-01 GRID #24	NA	Passed*	08/03/99
55231	TG23-01 GRID #23	NA	Passed*	08/03/99
55232	TG22-01 GRID #22	NA	Passed*	08/03/99
55233	TG21-01 GRID #21	NA	Passed*	08/03/99
55234	TG20-01 GRID #20	NA	Passed*	08/03/99
55235	TG38-01-DUP GRID #38	NA	Passed*	08/03/99
55236	TG48-01-DUP GRID #48	NA	Passed*	08/03/99
55237	TG12-01 GRID #12	NA	Passed*	08/03/99
55238	TG13-01 GRID #13	NA	Passed*	08/03/99
55239	TG18-01 GRID #18	NA	Passed*	08/03/99
55240	TG19-01 GRID #19	NA	Passed*	08/03/99

Indicates no free liquid passed through filter.

000065

WASTE STREAM
TECHNOLOGY

Quality Control Result Reports

2477

000066

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

: FERNALD
e Sampled: NA
e Received: NA

-- 2477
Group Number: 9902-226
Units: mg/L
TCLP Extraction Date: 08/03/99

WST ID: MBTC529 T1
Client ID: NA
Digestion Date: 08/04/99

alyte	Detection Limit	Result	Date Analyzed	Analysis Method
TCLP Method Blank	0.009	Not detected	08/04/99	SW-846 6010
TCLP Method Blank	0.015	Not detected	08/04/99	SW-846 6010

denotes Method Blank
denotes Not Applicable

000067



Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

-- 2477

Site: FERNALD
Site Sampled: NA
Site Received: NA

Group Number: 9902-226
Units: mg/L
TCLP Extraction Date: 08/03/99

WST ID: MBTC530 T1

Client ID: NA

Digestion Date: 08/04/99

Alyte	Detection Limit	Result	Date Analyzed	Analysis Method
TCLP Method Blank	0.009	Not detected	08/04/99	SW-846 6010
TCLP Method Blank	0.015	Not detected	08/04/99	SW-846 6010

B denotes Method Blank

N denotes Not Applicable

000068



Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

-- 2477

ite: FERNALD
ate Sampled: NA
ate Received: NA

Group Number: 9902-226
Units: mg/L
TCLP Extraction Date: 08/04/99

WST ID: MBTC530 T1
Client ID: NA
Digestion Date: 08/05/99

Analyte	Detection Limit	Result	Date Analyzed	Analysis Method
s TCLP Method Blank	0.009	Not detected	08/05/99	SW-846 6010
b TCLP Method Blank	0.015	Not detected	08/05/99	SW-846 6010

B denotes Method Blank
A denotes Not Applicable

000069

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

- 2477

Site: FERNALD
Date Sampled: NA
Date Received: NA

Group Number: 9902-226
Units: mg/L
TCLP Extraction Date: 08/04/99

WST ID: MBTC531 T1

Client ID: NA

Digestion Date: 08/05/99

Analyte	Detection Limit	Result	Date Analyzed	Analysis Method
As TCLP Method Blank	0.009	Not detected	08/05/99	SW-846 6010
Pb TCLP Method Blank	0.015	Not detected	08/05/99	SW-846 6010

MB denotes Method Blank

NA denotes Not Applicable

000070

Waste Stream Technology, Inc. - 2477
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	RFTC529 T1		
Client ID	NA		
TCLP Date	8/3/99		
Date Digested	8/4/99		
Date Analyzed	8/4/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	100	SW-846 6010
Arsenic	85 - 115	110	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000071

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report - 2477
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	RFTC530 T1		
Client ID	NA		
TCLP Date	8/3/99		
Date Digested	8/4/99		
Date Analyzed	8/4/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	102	SW-846 6010
Arsenic	85 - 115	113	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000072

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	RFTC530 T2		
Client ID	NA		
TCLP Date	8/3/99		
Date Digested	8/4/99		
Date Analyzed	8/5/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	104	SW-846 6010
Arsenic	85 - 115	114	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000073

Waste Stream Technology, Inc. -- 2477
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	RFTC531 T1		
Client ID	NA		
TCLP Date	8/4/99		
Date Digested	8/5/99		
Date Analyzed	8/5/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	102	SW-846 6010
Arsenic	85 - 115	114	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000074

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Matrix Spike Analysis Summary

- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	WS55226 MS		
Client ID	TG28-01 Grid 28		
TCLP Date	8/3/99		
Date Digested	8/4/99		
Date Analyzed	8/4/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	117	SW-846 6010
Arsenic	75 - 125	114	SW-846 6010

MS denotes Matrix Spike.

000075

Waste Stream Technology, Inc. -- 2477
TCLP Metals Analysis Result Report
Matrix Spike Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	WS55230 MS		
Client ID	TG24-01 Grid 24		
TCLP Date	8/4/99		
Date Digested	8/5/99		
Date Analyzed	8/5/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	114	SW-846 6010
Arsenic	75 - 125	108	SW-846 6010

MS denotes Matrix Spike.

000076

Waste Stream Technology, Inc.

-- 2477

TCLP Metals Analysis Result Report
Duplicate Sample Analysis Summary

Site : Fernald
Date Sampled : 8/2/99
Date Received : 8/3/99

Group Number : 9902-226
Report Units : mg/L
Matrix : TCLP Extract

Job ID Number	WS55226	WS55226 Dup		
Client ID	TG28-01 Grid 28	TG28-01 Grid 28		
TCLP Date	8/3/99	8/3/99		
Date Digested	8/4/99	8/4/99		
Date Analyzed	8/4/99	8/4/99	RPD (%)	RPD QC Limits (%)
Analyte	Initial Result	Duplicate Result		
Pb	<0.075	<0.075	<1.0	25
As	<0.045	<0.045	<1.0	25

Dup denotes Duplicate Sample.

000077

Waste Stream Technology, Inc. -- 2477

**TCLP Metals Analysis Result Report
Duplicate Sample Analysis Summary**

Site : Fernald
Date Sampled : 8/2/99
Date Received : 8/3/99

Group Number : 9902-226
Report Units : mg/L
Matrix : TCLP Extract

Job ID Number	WS55230	WS55230 Dup	RPD (%)	RPD QC Limits (%)
Client ID	TG24-01 Grid 24	TG24-01 Grid 24		
TCLP Date	8/4/99	8/4/99		
Date Digested	8/5/99	8/5/99		
Date Analyzed	8/5/99	8/5/99		
Analyte	Initial Result	Duplicate Result		
Pb	0.249	0.250	0.6	25
As	0.210	0.210	0.1	25

Dup denotes Duplicate Sample.

000078

2477

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Post-Digestion Spike Analysis Summary

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 5.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	WS55223		
Client ID	TG31-01 Grid 31		
TCLP Date	8/3/99		
Date Digested	8/4/99		
Date Analyzed	8/4/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	100	SW-846 6010
Arsenic	85 - 115	102	SW-846 6010

000079

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Post-Digestion Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 5.0 mg/L

Group Number : 9902-226
Report Units : % Recovery

Lab ID Number	WS55232		
Client ID	TG22-01 Grid 22		
TCLP Date	8/4/99		
Date Digested	8/5/99		
Date Analyzed	8/5/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	102	SW-846 6010
Arsenic	85 - 115	104	SW-846 6010

000080

PROJECT # 20713

SGJ12 9902-226

PROJECT NO.	SITE NAME: FERNALD					SIZE & NO. OF CONTAINERS	TESTS			PRESERVATIVES	REMARKS
							TCLP LEAD	TCLP ARSENIC	PAINT FNTL		
SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION					
1648-01	8/3/99	1602		X	SOIL	GRID # 48	1x 500ml	X	X	X	WS 55215 200358376
1638-01		0938				38					16 200358377
1637-01		0936				37					17 200358378
1636-01		0840				36					18 200358379
1635-01		0924				35					19 200358380
1634-01		0907				34					20 200358381
1633-01		0914				33					21 200358382
1632-01		0919				32					22 200358383
1631-01		1017				31					23 200358384
1630-01		1006				30					24 200358385
1629-01		0922				29					25 200358386
1628-01		0851				28					26 200358387
1627-01		0931		X		27		X	X		27 200358388
RELINQUISHED BY (SIGNATURE)		DATE/TIME	RECEIVED BY (SIGNATURE)			RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)			
<i>GL Utz</i>		8/2/99 10:25	<i>Q.P. Yardi</i> 5336 SMM			<i>Oph. Yardi</i> 5336 SMM	8-2-99 10:25	<i>Cat Murphy</i> 541 9:17			
RELINQUISHED BY (SIGNATURE)		DATE/TIME	RECEIVED BY (SIGNATURE)			RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)			
<i>John Doe</i> 159		8/2/99 10:25	<i>Cat Murphy</i> 541 9:17			<i>John Doe</i> 159	8-3-99 9:17	<i>SS Jpa</i>			
SPECIAL INSTRUCTIONS: RUSH!!!											
TURNAROUND TIME: Due 8/4/99											
LAB USE: REFRIGERATOR #					SHELF #		GROUP #			DUE DATE	

SC512 9902-226

PROJECT NO:		SITE NAME:		SIZE & NO. OF CONTAINERS	PRESERVATIVES				REMARKS		
E598		FERNALD			TCLP LEAD	TCLP PARSER	PAINT	EV			
SAMPLERS (SIGNATURE):	OL Utz	SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION			
TG-26-01	8/2/99	0928	X	5016	GRID #	26	15'	500ml	X X X	W555228 200358389	
TG-25-01		1020				25				29 200358390	
TG-24-01		1008				24				WS 552 30 200358391	
TG-23-01		1014				23				31 200358392	
TG-22-01		1011				22				32 200358393	
TG-21-01		0859				21				33 200358394	
TG-20-01		0944				20				34 200358395	
TG-18-01		0958				38				200358396	
TG-17-01		1002	X	✓		48	✓	X X X		35 DUPLICATE	
TG-16-01		0947				12				36 200358397	
TG-15-01		0941				13				37 200358398	
TG-14-01		0951				18				38 200358399	
TG-13-01		0954	X	✓		19	✓	X X X		39 200358400	
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
OL Utz 1w S		8/2/99 1025		Opl Yardi 5536 Smnp		Opl Yardi 5536 Smnp		8-2-99 1105		Ol Murphy SPL	
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
Domestic Env		8/2/99 1025		Ol Murphy SPL		Shipping by		6-3-99 9:15		S. G. J. 4	
SPECIAL INSTRUCTIONS 8/2/99 1300 AM 8/1/99											
TURNAROUND TIME RUSH											

Analytical Data Report

Report Date : 08/06/99

Group Number : 9902-229

-- 2477

Site : FERNALD

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
TG01-01 Grid #1	WS55384	Soil	08/04/99	08/05/99	09:15
TG02-01 Grid #2	WS55385	Soil	08/04/99	08/05/99	09:15
TG03-01 Grid #3	WS55386	Soil	08/04/99	08/05/99	09:15
TG04-01 Grid #4	WS55387	Soil	08/04/99	08/05/99	09:15
TG05-01 Grid #5	WS55388	Soil	08/04/99	08/05/99	09:15
TG06-01 Grid #6	WS55389	Soil	08/04/99	08/05/99	09:15
TG07-01 Grid #7	WS55390	Soil	08/04/99	08/05/99	09:15
TG08-01 Grid #8	WS55391	Soil	08/04/99	08/05/99	09:15
TG09-01 Grid #9	WS55392	Soil	08/04/99	08/05/99	09:15
TG10-01 Grid #10	WS55393	Soil	08/04/99	08/05/99	09:15
TG11-01 Grid #11	WS55394	Soil	08/04/99	08/05/99	09:15
TG14-01 Grid #14	WS55395	Soil	08/04/99	08/05/99	09:15
TG15-01 Grid #15	WS55396	Soil	08/04/99	08/05/99	09:15
TG16-01 Grid #16	WS55397	Soil	08/04/99	08/05/99	09:15
TG17-01 Grid #17	WS55398	Soil	08/04/99	08/05/99	09:15
TG02-01 D Grid #2	WS55399	Soil	08/04/99	08/05/99	09:15
TG06-01 D Grid #6	WS55400	Soil	08/04/99	08/05/99	09:15

Sample Status Upon Receipt : No irregularities.

000083
**WASTE STREAM
TECHNOLOGY**

-- 2477

METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

000084



Waste Stream Technology, Inc.**Paint Filter Test**

SW-846 9095

2477

Site: FERNALD
Date Sampled: 08/04/99
Date Received: 08/05/99

Group Number: 9902-229
Matrix: Soil
Units: Pass/Fail

NST ID	Client ID	Detection Limit	Result	Date Analyzed
VS55384	TG01-01 Grid #1	NA	Passed*	08/05/99
VS55385	TG02-01 Grid #2	NA	Passed*	08/05/99
VS55386	TG03-01 Grid #3	NA	Passed*	08/05/99
VS55387	TG04-01 Grid #4	NA	Passed*	08/05/99
VS55388	TG05-01 Grid #5	NA	Passed*	08/05/99
VS55389	TG06-01 Grid #6	NA	Passed*	08/05/99
VS55390	TG07-01 Grid #7	NA	Passed*	08/05/99
VS55391	TG08-01 Grid #8	NA	Passed*	08/05/99
VS55392	TG09-01 Grid #9	NA	Passed*	08/05/99
VS55393	TG10-01 Grid #10	NA	Passed*	08/05/99
VS55394	TG11-01 Grid #11	NA	Passed*	08/05/99
VS55395	TG14-01 Grid #14	NA	Passed*	08/05/99
VS55396	TG15-01 Grid #15	NA	Passed*	08/05/99
VS55397	TG16-01 Grid #16	NA	Passed*	08/05/99
VS55398	TG17-01 Grid #17	NA	Passed*	08/05/99
VS55399	TG02-01 D Grid #2	NA	Passed*	08/05/99
VS55400	TG06-01 D Grid #6	NA	Passed*	08/05/99

* indicates no free liquid passed through filter.

000085

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Arsenic by ICP

SW-846 6010

-- 2477

Site: FERNALD

Date Sampled: 08/04/99

Date Received: 08/05/99

Group Number: 9902-229

Units: mg/L

Matrix: TCLP Extract(s)

TCLP Extraction Date: 08/05/99

Date Digested: 08/06/99

ST ID	Client ID	Detection Limit	Result	Date Analyzed
'S55384	TG01-01 Grid #1	0.045	0.045	08/06/99
'S55385	TG02-01 Grid #2	0.045	Not detected	08/06/99
'S55386	TG03-01 Grid #3	0.045	Not detected	08/06/99
'S55387	TG04-01 Grid #4	0.045	Not detected	08/06/99
'S55388	TG05-01 Grid #5	0.045	Not detected	08/06/99
'S55389	TG06-01 Grid #6	0.045	Not detected	08/06/99
'S55390	TG07-01 Grid #7	0.045	Not detected	08/06/99
'S55391	TG08-01 Grid #8	0.045	Not detected	08/06/99
'S55392	TG09-01 Grid #9	0.045	Not detected	08/06/99
'S55393	TG10-01 Grid #10	0.045	Not detected	08/06/99
'S55394	TG11-01 Grid #11	0.045	Not detected	08/06/99
'S55395	TG14-01 Grid #14	0.045	Not detected	08/06/99
'S55396	TG15-01 Grid #15	0.045	Not detected	08/06/99
'S55397	TG16-01 Grid #16	0.045	Not detected	08/06/99
'S55398	TG17-01 Grid #17	0.045	Not detected	08/06/99
'S55399	TG02-01 D Grid #2	0.045	Not detected	08/06/99
'S55400	TG06-01 D Grid #6	0.045	Not detected	08/06/99

000086

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.

TCLP Metals Analysis Report

Lead by ICP
SW-846 6010

-- 2477

Site: FERNALD
Date Sampled: 08/04/99
Date Received: 08/05/99

Group Number: 9902-229
Units: mg/L
Matrix: TCLP Extract(s)

TCLP Extraction Date: 08/05/99
Date Digested: 08/06/99

ST ID	Client ID	Detection Limit	Result	Date Analyzed
S55384	TG01-01 Grid #1	0.075	Not detected	08/06/99
S55385	TG02-01 Grid #2	0.075	Not detected	08/06/99
S55386	TG03-01 Grid #3	0.075	Not detected	08/06/99
S55387	TG04-01 Grid #4	0.075	Not detected	08/06/99
S55388	TG05-01 Grid #5	0.075	Not detected	08/06/99
S55389	TG06-01 Grid #6	0.075	Not detected	08/06/99
S55390	TG07-01 Grid #7	0.075	Not detected	08/06/99
S55391	TG08-01 Grid #8	0.075	Not detected	08/06/99
S55392	TG09-01 Grid #9	0.075	Not detected	08/06/99
S55393	TG10-01 Grid #10	0.075	Not detected	08/06/99
S55394	TG11-01 Grid #11	0.075	Not detected	08/06/99
S55395	TG14-01 Grid #14	0.075	Not detected	08/06/99
S55396	TG15-01 Grid #15	0.075	Not detected	08/06/99
S55397	TG16-01 Grid #16	0.075	Not detected	08/06/99
S55398	TG17-01 Grid #17	0.075	Not detected	08/06/99
S55399	TG02-01 D Grid #2	0.075	Not detected	08/06/99
S55400	TG06-01 D Grid #6	0.075	Not detected	08/06/99

Quality Control Result Reports

-- 2477

000088

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

-- 2477

Site: FERNALD
Date Sampled: NA
Date Received: NA

Group Number: 9902-229
Units: mg/L
TCLP Extraction Date: 08/05/99

WST ID: MBTC532 T1
Client ID: NA
Digestion Date: 08/06/99

Analyte	Detection Limit	Result	Date Analyzed	Analysis Method
As TCLP Method Blank	0.009	Not detected	08/06/99	SW-846 6010
Se TCLP Method Blank	0.015	Not detected	08/06/99	SW-846 6010

B denotes Method Blank

A denotes Not Applicable

000089

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report

2477

Site: FERNALD
Date Sampled: NA
Date Received: NA

Group Number: 9902-229

Units: mg/L

TCLP Extraction Date: 08/05/99

WST ID: MBTC533 T1

Client ID: NA

Digestion Date: 08/06/99

Analyte	Detection Limit	Result	Date Analyzed	Analysis Method
As TCLP Method Blank	0.009	Not detected	08/06/99	SW-846 6010
Se TCLP Method Blank	0.015	Not detected	08/06/99	SW-846 6010

B denotes Method Blank

A denotes Not Applicable

000090

WASTE STREAM
TECHNOLOGY

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-229
Report Units : % Recovery

Lab ID Number	RFTC533 T1		
Client ID	NA		
TCLP Date	8/5/99		
Date Digested	8/6/99		
Date Analyzed	8/6/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	106	SW-846 6010
Arsenic	85 - 115	115	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000091

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Reference Sample Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-229
Report Units : % Recovery

Lab ID Number	RFTC532 T1		
Client ID	NA		
TCLP Date	8/5/99		
Date Digested	8/6/99		
Date Analyzed	8/6/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	85 - 115	105	SW-846 6010
Arsenic	85 - 115	114	SW-846 6010

RF denotes Reference Sample.

NA denotes Not Applicable.

000092

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Matrix Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 1.0 mg/L

Group Number : 9902-229
Report Units : % Recovery

Lab ID Number	WS55391 MS		
Client ID	TG08-01 Grid 8		
TCLP Date	8/4/99		
Date Digested	8/5/99		
Date Analyzed	8/5/99		
Analyte	QC Limits	% Recovery	Analysis Method
Lead	75 - 125	108	SW-846 6010
Arsenic	75 - 125	114	SW-846 6010

MS denotes Matrix Spike.

000093

Waste Stream Technology, Inc.**-- 2477****TCLP Metals Analysis Result Report
Duplicate Sample Analysis Summary**

Site : Fernald
Date Sampled : 8/4/99
Date Received : 8/5/99

Group Number : 9902-229
Report Units : mg/L
Matrix : TCLP Extract

Lab ID Number	WS55391	WS55391 Dup	RPD (%)	RPD QC Limits (%)
Client ID	TG08-01 Grid 8	TG08-01 Grid 8		
TCLP Date	8/5/99	8/5/99		
Date Digested	8/6/99	8/6/99		
Date Analyzed	8/6/99	8/6/99		
Analyte	Initial Result	Duplicate Result		
Lead	< 0.075	< 0.075	< 0.1	25
arsenic	< 0.045	< 0.045	< 0.1	25

Dup denotes Duplicate Sample.

000094

Waste Stream Technology, Inc.
TCLP Metals Analysis Result Report
Post-Digestion Spike Analysis Summary

-- 2477

Site : Fernald
Matrix : TCLP Extract
Spike Amount = 5.0 mg/L

Group Number : 9902-229
Report Units : % Recovery

Lab ID Number	WS55400		
Client ID	TG06-01 D Grid 6		
TCLP Date	8/5/99		
Date Digested	8/6/99		
Date Analyzed	8/6/99	Analysis Method	
Analyte	QC Limits	% Recovery	
Lead	85 - 115	103	SW-846 6010
Arsenic	85 - 115	103	SW-846 6010

000095

PROJECT NO:		SITE NAME:		SIZE & NO. OF CONTAINERS	TESTS				PRESERVATIVES	REMARKS	
E598		FERNALD			TCLP	LEAD	PCP	ARSENIC			
SAMPLER'S SIGNATURE:	GL 165		DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION			
TG01-01	8/4/99	0849	X	SOIL	GRID #	1	500ml	X X X	WS 55384	200358712	
TG02-01		0848				2		/ / /		65 200358714	
TG03-01		0847				3				86 200358715	
TG04-01		0843				4				87 200358716	
TG05-01		0844				5				88 200358717	
TG06-01		0846				6				69 200358718	
TG07-01		0845				7				90 200358719	
TG08-01		0839				8				91 200358720	
TG09-01		0840				9				92 200358721	
TG10-01		0842				10				93 200358722	
TG11-01		0841				11				94 200358723	
TG14-01		0835				14				95 200358724	
TG15-01	✓	0836	✓	✓		15	✓	X X X	✓	96 200358725	
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
GL 165		8/4/99 0905		Tom Cow		Tom Cow		8/4/99 10:09		Timothy Schell	
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
Karen Hoffmire/SPCL		8-4-99 10:50		Levi SPC		Karen Hoffmire/SPCL		8-4-99 1300		Sgt. John S. 8-5-99	
SPECIAL INSTRUCTIONS: RUSH											
TURNAROUND TIME											

LAB USE: REFRIGERATOR #

SHELF #

GROUP #

DUE DATE

TECHNOLOGY

BUFFALO, NY 14207
(716) 876-5290

20710-PSP-0001

CHARGE #
5CJ12 9902-229

CHAIN OF CUSTODY RECORD

PROJECT NO:		SITE NAME:		SIZE & NO. OF CONTAINERS	TCP LEAD			TCP ARSENIC			PRESERVATIVES			REMARKS	
E598		FERNALD				TCP	LEAD	TCP	ARSENIC	PAINT	FILTER				
SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION									
TA-16-01	8/4/99	0637		X	SOIL GRID #	16	1x 500ml	X	X	X		WS 55397	200358726		
TA-17-01		0638		1		17		1	1	1			98 200358727		
TA-20-01		0648		1		2		1	1	1			99 200358728		
TA-26-01		0648		X	↓	6	↓	X	X	X		WS 55400	200358729		
END BM 8/4/99															
160000															
160000															
160000															
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)					
<i>G L Uff</i>		8/4/99 0905		<i>x Tom Carr</i>		<i>Tom Carr</i>		8/4/99 1009		<i>Alecia Schell</i>					
RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)					
<i>Karen Hoffman</i>		8-4-99 10:50		<i>RDO</i>		<i>Karen Hoffman / SPA 7706</i>		8-4-99 1300		<i>J Sj</i>					
SPECIAL INSTRUCTIONS: RUSH															
TURNAROUND TIME: 11:51															

LAB USE: REFRIGERATOR #

SHELF #

GROUP #

DUE DATE